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URETHRAL STRICTURE IN THE MALE*

A SURVEY OF ONE HUNDRED CASES

BY

G. O. MAYNE

Royal Infirmary, Edinburgh

Clinical impressions of the diminution in incidence of urethral stricture in the male are confirmed by the following figures from the Registrar-General's Statistical Review for England and Wales (1951), which show that the number of deaths of males from stricture of the urethra in 1951 was only 38 per cent. of that in 1939. These figures, however, reflect not only the diminishing incidence of stricture, but also the beneficial influence of the sulphonamides and antibiotics in reducing the septic complications of stricture during the period under review.

Year	Males	Females
1939	304	—
1940	277	—
1941	300	3
1942	293	1
1943	255	1
1944	226	1
1945	195	1
1946	188	3
1947	187	3
1948	170	—
1949	161	3
1950	131	1
1951	117	3

Nevertheless, during the past 5 years over a hundred cases of urethral stricture have been either diagnosed or treated at one male venereal disease clinic. One hundred of these cases form the basis of this paper.

Age.—The percentage of cases falling into 10-year age groups at the time of the first visit is shown in Fig. 1. Of the two (2 per cent.) under 30 years of age, one had urethritis (gonococcal or non-gonococcal) at the age of 21, and at 26 was admitted to a medical ward with acute retention of urine; after which he failed to attend regularly for dilatation of the stricture, and acute retention recurred on three further occasions (2, 4, and 11 years later). The other was treated elsewhere for gonorrhoea at the age of 23, 5 years before admission to our ward for meatotomy.

Ten (10 per cent.) cases were over 70 years old, including one of 82 who gave a history of urethritis 60 years previously. This patient had, during the preceding 4 years, been regularly instrumented in a surgical ward following temporary suprapubic cystostomy.

The mean age on reporting was 53·2 years, with very wide extremes of 82 and 26. Taking account of previous treatment elsewhere, the mean age at the time of diagnosis of stricture was 48·5 years, with a similarly wide range.

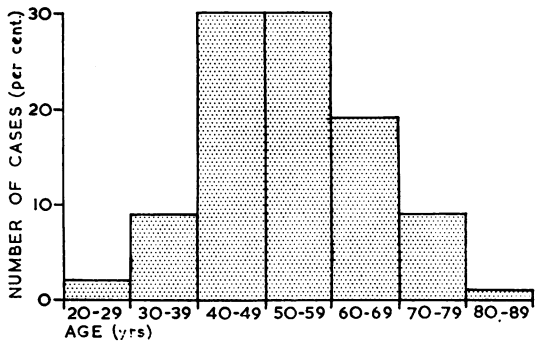

FIG. 1.—Stricture according to age distribution.

Marital State.—69 per cent. were either married or widowers. A comparable group of non-stricture cases with an average age of 55 years contained 83 per cent. of married men, whilst a survey of non-stricture cases all over the age of 20 revealed 58·4 per cent. to be married.

Number of Strictures per Case.—In the series under discussion the diagnosis was made clinically by the passage of sounds. Of the strictures thus

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encountered 69 were single, 26 multiple, 2 of the tunnel variety, and 3 could not be classified with certainty. Some of those classified as multiple may have been due to " flaps " or " soft-infiltrations " and might not be demonstrable at necropsy. In a small proportion normal prostatic hypertrophy may have imparted a sense of obstruction to the sound and may have led to over-diagnosis of posterior strictures.

Hunter (1818) has described a case with six separate strictures, and in France cases with between seven and eleven have been recorded. Apart from the ribbon or tunnel type, it is rare to encounter more than three separate strictures in an individual case ; in the present series two cases exhibited three strictures each ; none had more than three.

Case Reports

A.3422, aged 48, complaining of a poor urinary stream, gave a history of urethritis 27 years ago and of instrumentation 24 years ago because of difficulty in urination. On examination he was found to have strictures at the external meatus, in the anterior urethra $\frac{1}{2}$ in. from the meatus, and in the posterior urethra. During the first 5 years of attendance at the clinic he required dilatation 28, 20, 21, 20, and 14 times per annum. A local anaesthetic was occasionally employed in his case, but pre-medication with analgesics or antispasmodics was not needed. On two occasions he developed acute urinary retention, the first having been provoked by an alcoholic bout ; on each occasion the retention was relieved by passing a metal catheter.

E.1522, aged 68, was admitted with acute urinary retention preceded by difficulty and pain on micturition. He had also a perineal peri-urethral abscess with a fistula on the posterior surface of the scrotum. The acute retention was relieved by suprapubic puncture, and subsequent instrumentation revealed strictures in the anterior urethra, in the bulb, and at the bladder neck. Dilatation was repeated on three occasions using morphine pre-medication and a local anaesthetic, after which he defaulted for 3 years. He returned with another peri-urethral abscess and the strictures were again dilated on three occasions. After a further default period of 2 years he was re-admitted with acute retention, which was relieved by suprapubic puncture. One month later he developed a further perineal abscess, and was subsequently transferred to an institution.

It seems possible that urethroscopy and urethrography might with advantage be more frequently employed in the localization of stricture and in assessing the number of strictures ; in the present series the former was only occasionally employed and the latter once. Loughnane (1941), in a plea for the more widespread use of urethroscopy and urethrography in the investigation of stricture, refers to the latter method as " a valuable aid too seldom used ". He points out that by its use one is enabled to recognize the type of stricture (*i.e.*, whether annular or ribbon), the number, and the presence or absence of false passages.

Site of Strictures.—Clinical assessment of the sites of all strictures found (many being multiple) gave the results listed in Table I and illustrated semi-diagrammatically in Fig. 2. This supports the common belief that stricture most frequently develops in the bulbar portion of the urethra. Reasons put forward in the past to account for this include the looser attachment of the mucosa in this area to subjacent structures, poorer drainage, and damage by injudicious instrumentation. At least forty (40 per cent.) cases had previously undergone instrumentation at some time but the significance of this is difficult to evaluate, since instruments were formerly used as a routine test of cure. Also many patients may have been instrumented at the time of first onset of stricture symptoms and may then have defaulted.

Excluding the membranous urethra and bladder neck, 19·2 per cent. of all strictures were found to be

TABLE I
CLASSIFICATION OF STRICTURES ACCORDING TO SITE

Site of Strictures	Number of Strictures	Per cent.
Meatus	7	5·6
Anterior	19	15·2
Bulb	58	46·4
Membranous	10	8·0
Posterior	24	19·2
Bladder neck	7	5·6
Total	125	100

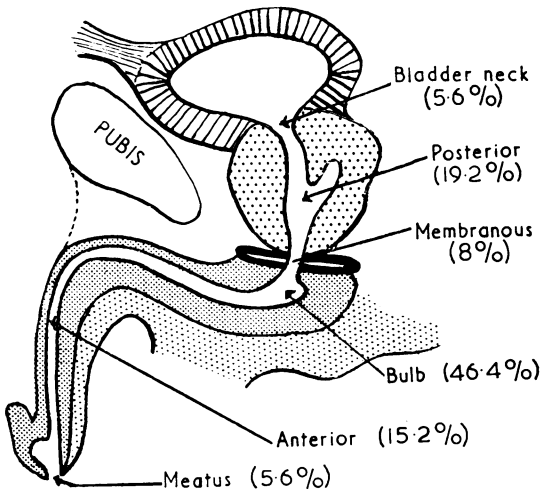

FIG. 2.—Frequency of anatomical site of strictures.

situated in the posterior urethra : in this respect our experience is in direct conflict with the prevalent opinion that posterior stricture is rare. Thus Loughnane (1941) stated that there were no recorded instances of stricture of the prostatic urethra, and this belief is frequently encountered in the literature.

Obstruction at the neck of the bladder constituted a further 5·6 per cent. of strictures. This well-recognized urological condition is a result of fibrosis extending from the prostate gland and follows previous prostatitis. It is frequently associated with stricture formation elsewhere in the urethra and with chronic urinary infection, and will be referred to later.

Symptoms.—The symptoms complained of by patients on their first visit to the clinic are illustrated graphically in Fig. 3. These figures emphasize the importance of the two major symptoms, difficulty and frequency of micturition, and serve as a reminder that a urethral stricture may occasionally present as an intractable mild non-specific urethritis with urethral discharge and evidence of pyuria. In these cases treatment of the urethritis is likely to be ineffectual unless the stricture is first found and dilated.

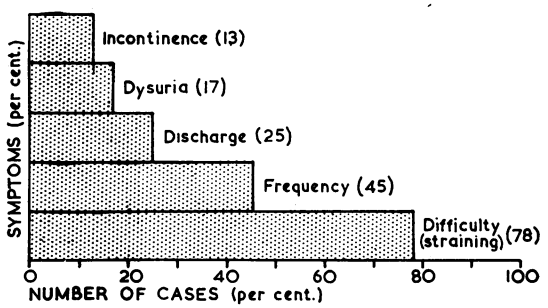

FIG. 3.—Symptoms of stricture.

A stricture may, none the less, be asymptomatic and bougies should be passed in any case in which suspicion arises, particularly in the age group 40 to 60 years with a history of previous urethritis. They should also be passed as a routine after the first attack of acute urinary retention, even in those cases in which relief is achieved without resort to catheterization.

In twenty cases (20 per cent.) it was possible to estimate the duration of symptoms in patients who had not previously been instrumented. The mean period was 37 months, with extremes of 2 weeks and 16 years. Half the patients reported within 1 year of onset and seventeen (85 per cent.) within 5 years (Fig. 4). There is no doubt that many are prepared to tolerate the symptoms listed above,

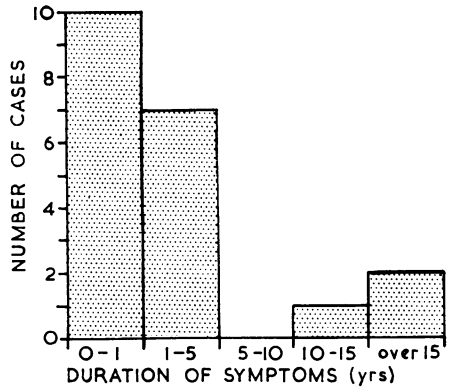

FIG. 4.—Duration of symptoms.

but they are driven sooner or later to seek advice by the onset of an acute urinary infection or acute retention of urine. Thus 41 patients (41 per cent.) reported for the first time with acute retention.

Acute Retention.—This developed in 51 patients (51 per cent.) at some stage of their management : 32 on one occasion only, twelve on two occasions, five on three, one on four, and one on five occasions, making a total of eighty episodes of acute retention.

It is said that exposure to cold, the onset of acute urinary infection, or over-indulgence in alcohol may precipitate acute retention. A definite history of alcoholic excess was obtained in only five cases, although it seems likely that its influence is in fact greater in the hospital clinic class of patients constituting this series. It is traditional to anticipate a few cases of acute retention around the Christmas and New Year seasons : indeed the advice tendered by Buchan (1800) still holds good. He wrote :

> Persons subject to suppression of urine ought to live very temperate. Their diet should be light, and their liquor diluting. They should avoid all acids and austere wines, should take sufficient exercise, lie hard, and avoid study and sedentary occupations.

Simple measures such as sedation (morphine or pethidine), antispasmodics (Trasentin suppositories), hot hip-baths, and/or urethral catheterization sufficed to relieve retention in 49 cases out of eighty (61 per cent). Suprapubic puncture by hollow needle or small trocar and cannula was required in twenty cases (25 per cent). In eleven (14 per cent.) suprapubic catheterization (cystostomy) was performed : of these eleven cases the cystostomy was temporary in eight (Table II, opposite).

TABLE II
RELIEF OF ACUTE RETENTION

Means of Relief	Cases	Per cent.
Simple measures and or urethral catheterization	49	61
Suprapubic puncture	20	25
Suprapubic catheterization : temporary	8	10
Suprapubic catheterization : permanent	3	4
Total	80	100

Urinary Infection.—The sequence of obstruction, stasis, and infection is well recognized in urology : accordingly it is not surprising that 66 cases (66 per cent.) exhibited some degree of urinary infection, varying from mild chronic urethritis to acute cystitis. In most cases the infection remained chronic with periodic exacerbations, and was best controlled by regular dilatation of the stricture combined with frequent urine culture and appropriate chemotherapy or antibiotics (Fig. 5 and Table III).

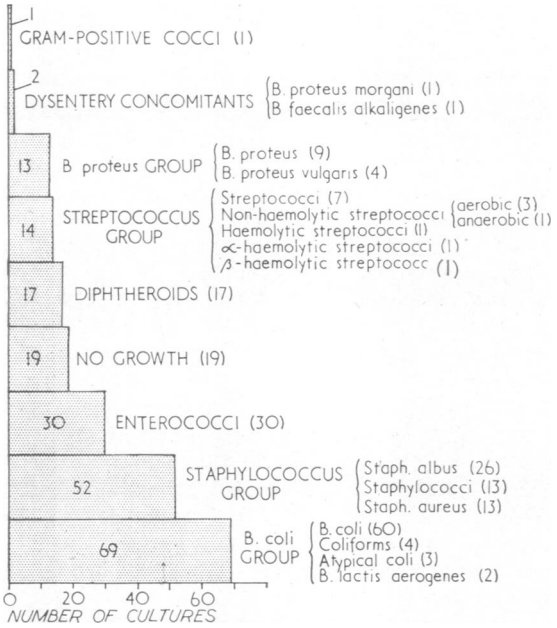

FIG. 5.—Results of cultural examination of 143 specimens of urine from 58 cases.

TABLE III
RESULTS OF 143 URINE CULTURES FROM 58 CASES

Organism	No. of Cultures	Organism	No. of Cultures
B. Coli	60	Atypical *B. Coli*	3
Enterococci	30	*B. Lactis Aerogenes*	2
Staph. Albus	26	Gram-positive cocci	1
No growth	19	Haemolytic streptococci	1
Diphtheroids	17	*B. Faecalis Alkaligenes*	1
Staphylococci	13	*B. Proteus Morgani*	1
Staph. Aureus	13	Non-haemolytic streptococci (anaerobic)	1
B. Proteus	9	α-Haemolytic streptococci	1
Streptococci	7	β-haemolytic streptococci	1
Coliforms	4		
B. Proteus Vulgaris	4		
Non-haemolytic streptococci	3		

Previous Urethritis.—A history of previous urethral discharge was given by 74 patients (74 per cent.), which must be taken to include gonorrhoea and non-gonococcal urethritis although the relative importance of each cannot be estimated. Of these, 42 (42 per cent.) stated that they had previously had gonorrhoea : the remaining 32 (32 per cent.) may have had either gonorrhoea or non-gonococcal urethritis.

Of the 74 patients who had had previous urethral discharge, 44 had never previously had instruments passed, whilst thirty had been instrumented at some time in the past, presumably either for obstructive symptoms or merely as a test of cure.

Time Necessary for Development of Symptoms.—The mean period from infection to development of stricture symptoms, so far as could be ascertained in 26 cases of previous gonorrhoea, was 20·9 years, with a very wide range giving extremes of 4 years and 35 years. In seventeen cases of previous urethritis (nature unknown) the mean period was 21·3 years, with extremes of 1 year and 42 years. The close similarity of these figures suggests that either there is no difference in the time of development of strictures following gonorrhoea and non-gonococcal urethritis, or that most of the cases listed as having had "urethritis of unknown aetiology" had in fact suffered from gonorrhoea (or a mixed gonococcal and non-gonococcal infection) at that time.

In both groups the greatest number of cases developed symptoms in the period from 10 to 34 years after the time of infection (Table IV), and if the two groups are combined it will be seen that 34 cases out of 43 (79·1 per cent.) developed in this period.

TABLE IV
PERIOD FROM INFECTION TO DEVELOPMENT OF SYMPTOMS

Years	Gonorrhoea	Urethritis ? Gonococcal + Non-Gonococcal Urethritis	Total
0–4	1	2	3
5–9	1	1	2
10–14	6	4	10
15–19	3	1	4
20–24	4	1	5
25–29	6	1	7
30–34	4	4	8
35–39	1	1	2
40–44	0	2	2
Total	26	17	43

This is in general agreement with the following figures quoted by Swinney (1952) : in 66 per cent. of strictures symptoms take 15 years or longer to develop, and only 5 per cent. experience symptoms within 5 years. Similarly Beard and Goodyear (1948) consider that in the majority of cases symptoms do not arise for 20 years or more.

Factors in Causation.—It is frequently said that the trauma of repeated irrigation or ill-judged instrumentation is more often responsible for stricture formation than is urethritis. The facts that in this series 74 patients (74 per cent.) admitted previous urethritis, whereas only twenty (20 per cent.) gave a definite history of having been treated by irrigations in the past, and only forty (40 per cent.) had previously had bougies passed, suggest that stricture may in fact occur more commonly in those who remain untreated for their original urethritis or who default before they are proved cured.

Be this as it may, analysis of the past histories in respect of each of these two features certainly fails to support the suggestion that either irrigation or instrumentation, as normally used for therapeutic purposes, played any significant part in the aetiology of urethral strictures in this series.

Thirteen patients (13 per cent.) gave no history of urethritis, irrigation, or instrumentation at any time previously. In these cases the cause remains obscure although it is highly probable that their memories were at fault. Analysis of these thirteen cases reveals a total of sixteen separate strictures, three having stenosis at two sites (Table V). The percentage distribution according to site resembles that found in the overall series, except that no strictures were encountered at the meatus or in the prostatic urethra. The absence of meatal strictures in this small group and the preponderance of strictures in the bulbar urethra combine to eliminate congenital defect as a likely cause of the urethral stenosis in these cases, and suggest that the same causes were operative here as in the complete series, despite the negative histories.

TABLE V

SITE, NUMBER, AND PERCENTAGE OF STRICTURES IN CASES WITH NO HISTORY OF URETHRITIS, IRRIGATION, OR INSTRUMENTATION

Site	Number	Per cent.
Anterior	3	18·7
Bulb	10	62·5
Membranous	1	6·3
Bladder Neck	2	12·5
Total	16	100

Frequency of Dilatation (Table VI)

Of the one hundred cases under study, a diminishing number of patients returned annually over a period of 5 years for regular dilatation of their strictures. The 5-year period was arbitrarily chosen, and the mean figure of dilatations per patient was calculated. The results show that in the first year of attendance the mean number of dilatations per patient was 5·9 ; in the second year, 4·7 ; and in the succeeding years, 4·9, 4·6, and 4·6 respectively (*i.e.*, the figure remains constant). Probably in no other condition is a higher degree of individual attention necessary, and it is not justifiable to argue from the general to the particular case. It can be assumed, however, that for every regularly attending stricture patient on the clinic records, an average of between four and five attendances for dilatation will be necessary each year. For this reason it would seem desirable that all newly-diagnosed stricture patients should be impressed with the fact that good health requires regular attendance at least every three months (quarterly), and that " cure " in the accepted sense is impossible to attain. Loughnane (1941) reminds us that the century-old belief that " the bougie must be a lifelong friend of a stricture patient " still holds good, and asserts that the maximum period between dilatations should in no case exceed 6 months.

TABLE VI

MEAN NUMBER OF DILATATIONS PER PATIENT PER YEAR

Year	Number Attending	Mean Dilatations
1	97	5·9
2	53	4·7
3	45	4·9
4	39	4·6
5	34	4·6

With these general rules we are in complete agreement, but it is nevertheless true that wide variations exist in the frequency with which individual patients require to undergo instrumentation. This is well shown in Table VII. These figures emphasize the fact that each case constitutes an individual therapeutic problem.

TABLE VII

EXTREMES IN FREQUENCY OF DILATATION REQUIRED BY INDIVIDUALS IN SUCCESSIVE YEARS

Year	Maximum	Minimum
1	41	1
2	25	1
3	21	1
4	20	1
5	14	1

The annual diminution in the numbers attending in successive years after the diagnosis of stricture has first been made (Table VI) can be accounted for by :

(*i*) Those who believe themselves cured : *i.e.*, whose symptoms are sufficiently relieved for an indefinite period. In this connexion it is of interest that Harkness (1950) states that congenital strictures may, on rare occasions, occur in the anterior and posterior urethra in addition to their more frequent occurrence at the meatus. Such strictures, when situated proximal to the meatus, are formed by a single reduplication of mucous membrane only. On urethroscopy they appear grey and translucent, and they may be cured by one instrumentation.

(*ii*) Those who " default," *i.e.*, symptoms present but patients unwilling or unable to resume full attendance.

(*iii*) Those who are transferred to other clinics or hospitals.

(*iv*) Those who leave the district or die.

In these cases one hesitates to employ the same defaulter-tracing techniques which work so well in other categories of venereal disease patients, for many are elderly men with grown-up families and it is undesirable to risk disclosing the personal or family skeleton to other relatives. Furthermore, many are of an age when death from other or natural causes might occur at any time, and no notification of this may have been received at the clinic.

Assuming that the management of the patient runs a smooth course and that he escapes the ever-present hazards of acute retention, acute cystitis (or other suppurative condition of the genito-urinary tract) or intercurrent infection elsewhere, for any of which he may require in-patient treatment, he will normally need urethral instrumentation perhaps five times annually. Each such treatment necessitates three out-patient visits :

(1) The patient's general condition is assessed, a date is fixed for instrumentation, and prophylactic chemotherapy is started.

(2) The instrumentation is carried out, preferably with pre-medication.

(3) The patient reports any complications or unpleasant sequelae.

Thus on the average each patient might require to attend the out-patient clinic on fifteen occasions each year. This is identical with the experience of Kidd (1916), and although the total number of stricture cases may be much fewer to-day, the time expended on the individual patient has remained unchanged.

Russell (1915) believed that in spite of surgical progress the treatment of urethral stricture had always lagged behind. He classified the available methods as follows :

(*a*) *Preventive.*—Surely the method of choice and, since the introduction of antibiotics, capable of achievement in most cases.

(*b*) *Surgical.*—(*i*) Not involving perineal operation, *i.e.*, simple dilatation and/or internal urethrotomy.

(*ii*) Involving perineal operation, *i.e.*, external urethrotomy or excision of the stricture.

His main conclusions were that in cases easily managed by dilatation no further operation is advisable, but that in very difficult or impassable strictures excision of the stricture should be performed.

Advances in surgical technique now make it possible to combine excision with plastic reconstruction of the urethra from a buried strip of skin, after the method described by Swinney (1952).

According to Swinney this operation is especially indicated in the following types of stricture :

(*a*) the resilient stricture, which contracts down a few days after every dilatation ;

(*b*) the tortuous and difficult stricture in which instrumentation is followed by pain, rigors, and fever ;

(*c*) the stricture associated with fistulae, in which there is extensive peri-urethral and perineal fibrosis.

In such cases the more widespread use of this method may make possible a considerable reduction in the frequency of subsequent instrumental dilatation.

Coincident Venereal Infections.—The presence of post-inflammatory urethral stricture presupposes in most cases exposure to venereal infection at some time in the past. It is therefore not surprising to find either history or clinical evidence of other venereal infections in cases investigated for stricture which may be tabulated as follows :

History of Syphilis in the past		5
Evidence of Syphilis	latent	8
	early	1
	tabes	1
History of Urethritis (gonococcal and non-gonococcal)		74
Evidence of Gonorrhoea	acute	3
	chronic	2

In the present series, as previously stated, 74 patients gave a definite history of urethral discharge, which must have included both gonococcal and non-gonococcal urethritis. Furthermore in five

patients there was evidence of gonococcal infection at the time of reporting because of stricture symptoms: three had acute gonorrhoea (purulent urethral discharge and gonococci present in urethral films) following recent exposure to infection, whilst two had evidence of chronic gonococcal infection (slight urethral discharge, threads in the urine, and a strongly positive GCFT).

Five patients had been treated for syphilis in the past, and a further ten were found to have previously undiagnosed syphilis on first reporting. One of these had a primary chancre, eight were latent syphilitics, and one had tabes dorsalis. Thus at least 15 per cent. had been infected with syphilis at some time.

Complications and Sequelae to Stricture (Table VIII)

The relatively high incidence of epididymitis, peri-urethral abscess, fistula formation, and prostatic calcification should be noted.

Epididymitis may be ascribed to back pressure along the vasa deferentia exerted by a large volume of residual infected urine, intensified by straining during micturition. Possibly some cases may be blood-borne or metastatic.

Peri-urethral abscess may arise in the course of acute urethritis as a result of blockage of the duct of, and abscess formation in, one of the glands of Littré, or later as the result of maceration or trauma of the urethral mucosa proximal to a stricture. It is easy to conceive that the strain of micturition might force out a small quantity of infected urine into the submucosa and thus initiate a focus of suppuration. An analysis of this group of septic complications shows that bacteriological examination of the abscess pus was made on eleven occasions in a total of eight patients, one patient having infected hydrocele bilaterally, and the other seven exhibiting peri-urethral abscesses. Coliform organisms were isolated on five occasions, non-haemolytic streptococci on three occasions, *Staphylococcus albus* on three, *Enterococcus* on two, and *B. proteus*, *Staphylococcus aureus*, and diphtheroids on one occasion each. In over two-thirds of cases identical organisms were cultured from the urine.

TABLE VIII
COMPLICATIONS AND SEQUELAE
(Occurring in a Total of 41 Cases out of 100 Observed)

Complication	Cases	Remarks
Epididymitis	8	1 case bilateral, 1 case two successive attacks
Peri-urethral abscess	12	9 perineal, 2 scrotal, 1 prostatic
Infected hydrocele	1	Bilateral
Fistula	7	4 perineal, 3 scrotal
Carcinoma: Prostate gland	2	—
Bladder	2	—
Calcification	9	Prostate (+, in one case, vesical calculus)
Hernia (inguinal)	2	1 bilateral
Haemorrhoids	1	Prolapsed
Prostatic hypertrophy	2	—
Diverticula	1	Bladder
Hydronephrosis	1	Right side
Peri-nephric abscess	1	—
Renal failure	1	—
Other conditions	2	1 verruca of glans, 1 bladder papilloma

Prostatic calcification occurred in nine cases and was usually not productive of symptoms. It has been suggested that the normal corpora amylacea may form the nuclei of phosphatic stones, especially in the presence of long-standing chronic urinary infection associated with urea-splitting organisms (*e.g.*, *B. proteus*, *B. pyocyaneus*) and a highly alkaline urine. Other cases represent quiescent and calcified tuberculous foci in the gland, and in these there is a small but present risk of causing acute miliary tuberculosis as the result of surgical interference.

In non-tuberculous prostatic calcification, such as that occurring in association with long-established urethral stricture, the diagnosis is made by the presence of one or more of the following signs:

(*a*) a hard mass in a mobile gland on rectal examination,

(*b*) crepitus elicited on rectal examination,

(*c*) "grating" sensation during the passage of metal bougies,

(*d*) characteristic *x*-ray appearances.

In eight of the cases the diagnosis was established by *x*-ray examination and in the ninth the condition was recognized during cystoscopy. In the differential diagnosis it is important to bear in mind carcinoma of the prostate and (as previously mentioned) calcified tuberculosis. Differentiation from carcinoma of the prostrate is aided by the findings on rectal examination (? fixity), the serum acid phosphatase, radiological examination for evidence of bone metastases, and the results of punch biopsy (Semple, 1951); and from calcified tuberculosis by the history and presence of clinical or radiological evidence of tuberculous foci elsewhere, for example, lungs, kidney.

Winsbury-White (1948) states, and our experience confirms, that if the stones are small or few in number symptoms are non-existent and no treatment is called for; if they are large or numerous, and especially if associated with obstruction and sepsis, any of the following symptoms may be caused: frequency of micturition, dysuria, perineal discomfort or pain, pyuria, slight terminal haematuria. When symptoms arise, treatment is by prostatectomy.

A frequent sequel to urethral stricture and chronic urinary infection is the condition known as " small fibrous prostate " (*prostatisme sans prostate*), in which there are symptoms of prostatic obstruction but no enlargement of the gland is found on palpation. The essential lesion is a thickening of the posterior lip of the internal meatus by an extension of dense fibrous tissue from the primary focus of sclerosis in the prostate gland. The condition results from previous prostatitis. On rectal examination the prostate feels normal in size or smaller than normal, but it is sometimes indurated and tender. Prostatic massage and microscopic examination of the expressed fluid reveal pus cells. On cystoscopy residual urine, trabeculation, hypertrophy of the median bar, sacculation, and chronic cystitis are found. Minor degrees may be treated by dilatation using large metal bougies (after preliminary meatotomy if necessary), prostatic massage, and posterior irrigations. If symptoms continue, either transurethral resection or open dissection is indicated, followed by subsequent bouginage (Walker, 1948). It has been stated previously that 5·4 per cent. of all strictures encountered in this series took this form of stenosis at the bladder neck.

Of the remaining sequelae listed in Table VIII, inguinal hernia, prolapsed haemorrhoids, vesical diverticula, hydronephrosis, may all be attributed to back pressure behind a stricture of long duration, although they might equally well be adventitious.

Summary

An analysis of one hundred cases of urethral stricture is made according to anatomical site and symptomatology.

It emerges that stricture of the posterior urethra (exclusive of the membranous urethra) is by no means rare, though frequently stated to be so. If obstruction at the bladder neck is included, 24·8 per cent. of all strictures in this series were posterior.

An account is given of the complications and sequelae occurring in this series during a limited period of observation.

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